

-- REMARKS --

The present amendment replies to a Second Non-Final Office Action dated October 18, 2002. Claims 1-20 are currently pending in the present application. Claims 1-15 have been amended herein to correct format errors. Attached hereto is a marked-up version of an amendment to claims 1-15 that is captioned "**Version With Markings To Show Changes Made**". No new matter has been introduced by the amendment of claims 1-15.

In the First Non-Final Office Action, Examiner Tran rejected pending claims 1, 3, 10-12 and 15-19 on various grounds. The Applicant responds to each rejection as subsequently recited herein, and respectfully requests reconsideration and further examination of the present application under 37 CFR § 1.112:

- A. Claim 12 was rejected under 35 U.S.C. §112, ¶2 as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention

The Applicant respectfully asserts that "the second current source" as recited in claim 12 has an antecedent basis established in claim 10. Withdrawal of the rejection of claim 12 under 35 U.S.C. §112, ¶2 as being indefinite is therefore respectfully requested.

- B. Claims 1, 10 and 11 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,037,890 to *Glass et al.*

The Applicant has thoroughly considered Examiner Tran's remarks concerning the patentability of independent claim 1 over *Glass*. The Applicant has also thoroughly read *Glass*. As recognized by Examiner Tran, *Glass* fails to disclose, teach or suggest a second current source coupled to the comparator device through a controllable switch as recited in dependent claim 3. The Applicant has therefore amended claim 1 to recite "a second reference current source (6) for generating a second reference current (I_{ref2})"; "a

controllable switch (7)”; and “a first current input (11) coupled for receiving the first reference current (I_{ref1}) in response to the controllable switch (7) being non-conductive, and for receiving both the first reference current (I_{ref1}) and second reference current (I_{ref2}) in response to the controllable switch (7) being conductive”.

Withdrawal of the rejection of independent claim 1 under 35 U.S.C. §102(e) as being anticipated by *Glass* is respectfully requested.

Claims 10 and 11 depend from amended independent claim 1. Therefore, dependent claims 10 and 11 include all of the elements and limitations of amended independent claim 1. It is therefore respectfully submitted by the Applicant that dependent claims 10 and 11 are allowable over *Glass* for at least the same reason as set forth with respect to amended independent claim 1. Withdrawal of the rejection of dependent claims 10 and 11 under 35 U.S.C. §102(e) as being anticipated by *Glass* is therefore respectfully requested.

- C. Claims 15-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,037,890 to *Glass* et al.

Claims 15-17 depend from amended independent claim 1. Therefore, dependent claims 15-17 include all of the elements and limitations of amended independent claim 1. It is therefore respectfully submitted by the Applicant that dependent claims 15-17 are allowable over *Glass* for at least the same reason as set forth with respect to amended independent claim 1. Withdrawal of the rejection of dependent claims 15-17 under 35 U.S.C. §103(a) as being unpatentable over *Glass* is therefore respectfully requested.

- D. Claims 1, 10 and 11 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,966,330 to *Tang* et al.

The Applicant has thoroughly considered Examiner Tran's remarks concerning the patentability of independent claim 1 over *Tang*. The Applicant has also thoroughly read *Tang*. As recognized by Examiner Tran, *Tang* fails to disclose, teach or suggest a second current source coupled to the comparator device through a controllable switch as recited in dependent claim 3. The Applicant has therefore amended claim 1 to recite "a second reference current source (6) for generating a second reference current (I_{ref2})"; "a controllable switch (7)"; and "a first current input (11) coupled for receiving the first reference current (I_{ref1}) in response to the controllable switch (7) being non-conductive, and for receiving both the first reference current (I_{ref1}) and second reference current (I_{ref2}) in response to the controllable switch (7) being conductive".

Withdrawal of the rejection of independent claim 1 under 35 U.S.C. §102(b) as being anticipated by *Tang* is respectfully requested.

- E. Claims 15-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,966,330 to *Tang* et al.

Claims 15-17 depend from amended independent claim 1. Therefore, dependent claims 15-17 include all of the elements and limitations of amended independent claim 1. It is therefore respectfully submitted by the Applicant that dependent claims 15-17 are allowable over *Tang* for at least the same reason as set forth with respect to amended independent claim 1. Withdrawal of the rejection of dependent claims 15-17 under 35 U.S.C. §103(a) as being unpatentable over *Tang* is therefore respectfully requested.

F. Claims 1 and 16-18 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,166,526 to *Greitschus* et al.

The Applicant has thoroughly considered Examiner Tran's remarks concerning the patentability of independent claims 1 and 18 over *Greitschus*. The Applicant has also thoroughly read *Greitschus*.

Claims 1, 16 and 17. As recognized by Examiner Tran, *Greitschus* fails to disclose, teach or suggest a second current source coupled to the comparator device through a controllable switch as recited in dependent claim 3. The Applicant has therefore amended claim 1 to recite “a second reference current source (6) for generating a second reference current (I_{ref2})”; “a controllable switch (7)”; and “a first current input (11) coupled for receiving the first reference current (I_{ref1}) in response to the controllable switch (7) being non-conductive, and for receiving both the first reference current (I_{ref1}) and second reference current (I_{ref2}) in response to the controllable switch (7) being conductive”.

Withdrawal of the rejection of independent claim 1 under 35 U.S.C. §102(e) as being anticipated by *Greitschus* is respectfully requested.

Claims 16 and 17 depend from amended independent claim 1. Therefore, dependent claims 16 and 17 include all of the elements and limitations of amended independent claim 1. It is therefore respectfully submitted by the Applicant that dependent claims 16 and 17 are allowable over *Greitschus* for at least the same reason as set forth with respect to amended independent claim 1. Withdrawal of the rejection of dependent claims 16 and 17 under 35 U.S.C. §102(e) as being anticipated by *Greitschus* is therefore respectfully requested.

Independent Claim 18. As recognized by Examiner Tran, *Greitschus* fails to disclose, teach or suggest a coupling of a second current source through a controllable switch to the comparator device as recited in cancelled dependent claim 20. The Applicant has therefore amended claim 18 to recite “wherein the first current input (11) is coupled for receiving the second reference current (I_{ref2}) through a controllable switch (7) controlled by a control signal (Sc) generated by the comparator device (10)”.

Withdrawal of the rejection of independent claim 18 under 35 U.S.C. §102(e) as being anticipated by *Greitschus* is respectfully requested.

- G. Claims 1, 3 and 15-18 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 5,760,614 to *Ooishi* et al.

The Applicant has thoroughly considered Examiner Tran's remarks concerning the patentability of independent claims 1 and 18 over *Ooishi*. The Applicant has also thoroughly read *Ooishi*.

Claims 1, 3 and 15-17. *Ooishi* discloses a comparator device having a current input coupled for receiving a reference current ($Q31$) in response to controllable switch ($Q30$) being conductive. *Ooishi* fails to teach or suggest the current input coupled for receiving the reference current ($Q31$) and an additional current in response to controllable switch ($Q30$) being conductive. The Applicant has therefore amended independent claim 1 to recite “a first current input (11) coupled for receiving the first reference current (I_{ref1}) in response to the controllable switch (7) being non-conductive and for receiving both the first reference current (I_{ref1}) and second reference current (I_{ref2}) in response to the controllable switch (7) being conductive”.

Withdrawal of the rejection of independent claim 1 under 35 U.S.C. §102(e) as being anticipated by *Ooishi* is respectfully requested.

Claims 3 and 15-17 depend from amended independent claim 1. Therefore, dependent claims 3 and 15-17 all of the elements and limitations of amended independent claim 1. It is therefore respectfully submitted by the Applicant that dependent claims 3 and 15-17 are allowable over *Ooishi* for at least the same reason as set forth with respect to amended independent claim 1. Withdrawal of the rejection of dependent claims 3 and 15-17 under 35 U.S.C. §102(e) as being anticipated by *Ooishi* is therefore respectfully requested.

Independent Claim 18. As recognized by Examiner Tran, *Ooishi* fails to disclose, teach or suggest a coupling of a second current source through a controllable switch to the comparator device as recited in cancelled dependent claim 20. The Applicant has therefore amended claim 18 to recite “wherein the first current input (11) is coupled for receiving the second reference current (I_{ref2}) through a controllable switch (7) controlled by a control signal (Sc) generated by the comparator device (10)”.

Withdrawal of the rejection of independent claim 18 under 35 U.S.C. §102(e) as being anticipated by *Ooishi* is respectfully requested.

New claim 21 depends from amended independent claim 18. Therefore, dependent claim 21 includes all of the elements and limitations of amended independent claim 18. It is therefore respectfully submitted by the Applicant that dependent claim 21 is allowable over *Ooishi* for at least the same reason as set forth with respect to amended independent claim 18. Allowance of claim 21 over *Ooishi* and the other art of record is therefore respectfully requested.

H. Claim 19 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,760,614 to *Ooishi* et al.

As recognized by Examiner Tran, *Ooishi* fails to disclose, teach or suggest a coupling of a second current source through a controllable switch to the comparator device as recited in cancelled dependent claim 20. The Applicant has therefore amended claim 19 to recite “wherein the first current input (11) is coupled for receiving the second reference current (I_{ref2}) through a controllable switch (7) controlled by a control signal (Sc) generated at the control output (14)”.

Withdrawal of the rejection of independent claim 19 under 35 U.S.C. §103(a) as unpatentable over *Ooishi* is respectfully requested.

New claim 22 depends from amended independent claim 19. Therefore, dependent claim 22 includes all of the elements and limitations of amended independent claim 19. It is therefore respectfully submitted by the Applicant that dependent claim 22 is allowable over *Ooishi* for at least the same reason as set forth with respect to amended independent claim 19. Allowance of claim 22 over *Ooishi* and the other art of record is therefore respectfully requested.

SUMMARY

Examiner Tran's 35 U.S.C. §112, ¶2 rejection of claim 12 has been obviated by the above remarks concerning the compliance of claim 12 with 35 U.S.C. §112, ¶2. Examiner Tran's various 35 U.S.C. §§102(b), 102(e) and 103(a) rejections of claims 1, 3, 10, 11, and 15-19 have been obviated by the amendments herein to independent claims 1, 18 and 19. The Applicant respectfully submits that claims 1-19, 21 and 22 fully satisfy the requirements of 35 U.S.C. §§ 102, 103 and 112. In view of the foregoing, favorable consideration and early passage to issue of the present application is respectfully requested.


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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

1. (Twice Amended) A voltage level monitoring circuit, comprising:
a first reference current source (5) for generating a first reference current (I_{ref1});
a second reference current source (6) for generating a second reference current (I_{ref2});
a controllable switch (7);
a monitoring current source (4) for generating a monitoring current (I_M) derived from a voltage (V_M) to be measured; and
a comparator device (10) including
a first current input (11) coupled for receiving the first reference current (I_{ref1}) in response to the controllable switch (7) being non-conductive, and for receiving both the first reference current (I_{ref1}) and second reference current (I_{ref2}) in response to the controllable switch (7) being conductive,
a second current input (12) coupled for receiving the monitoring current (I_M), and
at least one measuring signal output (13),
wherein [said] the comparator device (10) is arranged for comparing the currents received at its two current inputs (11, 12) and for generating at the measuring signal output (13) a measuring signal (S) with a first value when the current received at its second current input (12) is less than the current received at its first current input (11), and with a second value when the current received at its second current input (12) is more than the current received at its first current input (11).

3. (Thrice Amended) The voltage level monitoring circuit according to claim 1, [further comprising a second reference current source (6) for generating a second reference current (I_{ref2}),] wherein a current output of the second reference current source (6) [being] is coupled to the comparator device (10) through [a] the controllable switch (7).

4. (Twice Amended) The voltage level monitoring circuit according to claim [3] 1, wherein the controllable switch (7) is controlled by a control signal (Sc) generated by the comparator device (10).

6. (Thrice Amended) The voltage level monitoring circuit according to claim [3] 1, wherein the second reference current source (6) includes a PMOS transistor (60) having its source coupled for receiving the voltage (V_{DD}) to be measured, having its gate coupled for receiving a bias voltage (V_{bias}), and having its drain coupled to the controllable switch (7).

7. (Thrice Amended) The voltage level monitoring circuit according to claim [3] 1, wherein the controllable switch (7) includes a PMOS transistor (70) having its source coupled the current output of the second reference current source (6), having its drain coupled to the first current input (11) of the comparator device (10), and having its gate coupled to a control output (14) of the comparator device (10).

17. (Amended) The voltage level monitoring circuit according to claim [3] 1, wherein the second reference current source (6) includes a programmable current source (90).

18. (Amended) A voltage level monitoring circuit, comprising:
- a first reference current source (5) for generating a first reference current (I_{ref1});
 - a second reference current source (6) for generating a second reference current (I_{ref2});
 - a monitoring current source (4) for generating a monitoring current (I_M) derived from a voltage (V_M) to be measured; and
 - a comparator device (10) including a first current input (11) coupled for receiving the first reference current (I_{ref1}) [and the second reference current (I_{ref2})], a second current input (12) coupled for receiving the monitoring current (I_M), and at least one measuring signal output (13),
 - wherein the first current input (11) is coupled for receiving the second reference current (I_{ref2}) through a controllable switch (7) controlled by a control signal (Sc) generated by the comparator device (10), and
 - wherein [said] the comparator device (10) is arranged for comparing the currents received at its two current inputs (11, 12) and for generating at the measuring signal output (13) a measuring signal (S) with a first value when the current received at its second current input (12) is less than the current received at its first current input (11), and with a second value when the current received at its second current input (12) is more than the current received at its first current input (11).

19. (Amended) A voltage level monitoring circuit, comprising:
- a first reference current source (5) for generating a first reference current (I_{ref1});
 - a second reference current source (6) for generating a second reference current (I_{ref2});
 - a monitoring current source (4) for generating a monitoring current (I_M) derived from a voltage (V_M) to be measured; and
 - a comparator device (10) including
 - a first current input (11) coupled for receiving the first reference current (I_{ref1}),
 - a second current input (12) coupled for receiving the monitoring current (I_M),
 - a control output (14),
 - a first inverter (80) having an input (81) coupled to the first current input (11) and the second current input (12), the first inverter (80) further having an output (82) coupled to the control output (14),
 - a second inverter (83) having an input (84) coupled to the output (82) of the first inverter (80), the second inverter (83) further having an output (85), and
 - at least one measuring signal output (13) coupled to the output (85) of the second inverter (85),
- wherein the first current input (11) is coupled for receiving the second reference current (I_{ref2}) through a controllable switch (7) controlled by a control signal (Sc) generated at the control output (14), and
- wherein the comparator device (10) [compares] is arranged for comparing the currents received at its two current inputs (11, 12) and [generates] for generating a measuring signal (S) having a first value when the current received at its second current input (12) is less than the current received at its first current input (11), and with a second value when the current received at its second current input (12) is more than the current received at its first current input (11).